Depth Paper

1 a – organelles visible with clarity

ii) Laser has depth selectivity.

b) Prophase 1, as chromatin has condensed to from chromsomes, and there is a lack of spindle fibres / chrmosomes are not arranged at the equator)

ii)

Metaphase – Random assortment of bivalents so that each homologous chromosome can face either pole indepdent of each other

c) Stem cells from bone marrow and umbical cord, with argument about use of stem cells,

2 – Use red food colouring in water, cut stem of celery of under water, and leave for few days. Areas stained red are xylem due to water uptake

. Water Starwort has air spaces present in cells.

Cholla has swollen stems due to cacti being succlents.

2.

Xylem and phloem are both cylindrical,

however xylem is living – phloem is dead

xylem is a continuous column, phloem has sieve plates

3 – Disect fish longitudinally using scalpel and forceps.

Mean calculating incorrectly – should be 19 not 20.

Structure was a trachiole

Mammal has different trachea due to having c shaped cartilage allowing flexibility and support

c) 6 mark standard question on adaptations of alveoli for gas exchange.

4 – Both B and T lymphocytes form part of the immune response, and differentiate into memory cells.

Only T-Lymphocytes produce chemicals which casue **LYSIS** of infected cells

Only B lymphocytes form plasma cell clones

b) Standard question on primary and secondary immune response, due to time taken to display antigens, clonal selection and expansion. Secondary is faster due to having memory cells recognising faster .

C) question on Ebola – lack of sanitation… isolate those affecting, ring vaccination.. etc.

5 - % change is 28%

ii) Difference due to new selection pressures, eg predator

iv) Correlation does not necessarily imply causation. Trends may be due to other factors.

b) Woodland has more species richness due to having 10 species as opposed to 6.

c) – genetic Biodiversity
ii) Allows it to adapt to different selectional pressures, eg due to camoflague.

6 – Graph to plot with line of best fit.

B Use of calibration curve – use cuvette and sample of joices to find out absorbance, read of y axis from graph and find value

B i) Do a benedicts test with known concentrations of glucose, and observe colour change.

Do benedicts test with unkown samples and compare colour changes to that of known samples.

OR- Do experiement with **Percentage** change in mass of a potato ship. The potato ship with the highest change in mass has the solution with highest glucose concentration (lowest water potential), and vice versa.

Blind taste trial answers are not accepted.

C) Molecular structure of cholesterol is similar, as they both have, Carbon, Hydrogen and Oxygen atoms only. Can also say Hyrdoxyl group., or presence of a carbon ring.S

Ii0 Glucose can be transported in bloodstream as it is polar, can form hydrogen bonds hence is soluble).